

UNIVERSITY OF MIAMI
Curriculum Vitae for Shuyi S. Chen

Rosenstiel School of Marine and Atmospheric Sciences, University of Miami
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PERSONAL INFORMATION

Name: **Shuyi S. Chen**
Home Phone: (305) 662-2564
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Home Address: 4181 Pomona Ave., Miami, FL 33133

Current Academic Rank: Professor
Primary Appointment: Division of Meteorology & Physical Oceanography
Rosenstiel School of Marine & Atmospheric Science
University of Miami, Miami, FL 33149

Affiliate Appointment I: Affiliate Professor, Department of Atmospheric Sciences
University of Washington, Seattle, WA 98195

Affiliate Appointment II: Affiliate Scientist, MMM/National Center for Atmospheric Sciences, Boulder, CO

Citizenship: U.S.A.

HIGHER EDUCATION

1990 Ph.D. Meteorology, The Pennsylvania State University
1985 M.S. Meteorology, University of Oklahoma
1982 B.S. Geophysics, Peking University

PROFESSIONAL EXPERIENCE

June 2007 – Present	Professor, University of Miami
June 2006 – Present	Affiliate Scientist, National Center for Atmospheric Research
Oct 1998 – Present	Affiliate Professor, University of Washington
June 2000–May 2007	Associate Professor, University of Miami
Aug 1997– May 2000	Associate Research Professor, University of Miami
Jan 1996–July 1997	Assistant Research Professor, University of Washington
Sept 1991–Dec 1995	Research Associate, University of Washington
May 1990–Aug 1991	Research Associate, The Pennsylvania State University

Editorial Responsibilities:

2012 – Editorial Review for National Research Council Reports
2004 – 2006 **Editor**, *Weather and Forecasting*, America Meteorological Society.
2000 – 2003 **Associate Editor**, *Weather and Forecasting*, America Meteorological Society.

Professional Membership:

1991 – present Member, The American Geophysical Union
1984 – present Member, The American Meteorology Society

Field Program Experience:

2011 – Principle Investigator/Mission Scientist of Aircraft Observation, Dynamics of Madden-Julian Oscillation (DYNAMO), Diego Garcia, BIOT
2010 – Principle Investigator, Impact of Typhoons on the Ocean over the Pacific (ITOP), Guam, US
2005 – Principle Investigator/Chief Scientist, Hurricane Rainbands and Intensity Change Experiment (RAINEX), Miami and Tampa, Florida
2003 – 2004 Principle Investigator of Coupled Boundary Air-Sea Transfer (CBLAST)-Hurricane, Miami, Florida
1992 – 1993 Satellite Scientist, providing guidance and directing aircraft missions, Tropical Ocean and Global Atmosphere Coupled Ocean and Atmosphere Response Experiment (TOGA COARE), Honiara, Solomon Islands

Panel and Science Committee:

- The National Academies Board on Atmospheric Sciences and Climate (BASC)
- The National Academy of Science Committee on Progress and Priorities of US Weather Research and Research-to-Operations Activities
- American Geophysical Union – Committee on Cloud and Precipitation
- Science Advisory Board for Weather Research and Forecasting (WRF) Model
- Science Advisory Board for Developmental Testbed Center (DTC)

Congressional Testimonies:

- Testimony at the Hearing on: *Restoring U.S. Leadership on Weather Forecasting*, before the Subcommittee on Environment, Committee on Science, Space, and Technology of United States House of Representatives, 26 June 2013.
- Testimony at the Joint Hearing on: *The State of Hurricane Research and the National Hurricane Research Initiative Act of 2007*, before the Subcommittee on Energy and Environment and the Subcommittee on Research and Science Education, Committee on Science and Technology of United States House of Representatives, 26 June 2008.

HONORS & AWARDS

- 2012 Fellow of the American Meteorological Society
- 2007 A.P. Sloan Foundation Leadership Award for Advancing Underrepresented Minority Students in Mathematics, Science and Engineering
- 2006 NASA Group Achievement Award for Tropical Cloud System Processes
- 2002 First Place Award, the National Collegiate Weather Forecasting Contest, the Faculty and Staff Division (2001-2002).

PUBLICATIONS

Juried or refereed journal articles:

- Chen, S. S., W. Zhao, M. A. Donelan, and H. L. Tolman, 2013: Directional wind-wave coupling in fully coupled atmosphere-wave-ocean models: Results from CBLAST-Hurricane, *J. Atmos. Sci.*, **70**, 3198-3215.
- Chen, S. S., W. Zhao, C.-Y. Lee, J. F. Price, and T. B. Sanford, 2014: Fully coupled atmosphere-wave-ocean model simulations of three Atlantic hurricanes: Air-sea fluxes and pressure-wind relationship, *J. Atmos. Sci.*, submitted.
- Kerns, B. W., and S. S. Chen, 2014: Equatorial dry air intrusion and related synoptic variability in MJO initiation during DYNAMO, *Mon. Wea. Rev.*, **142**, 1326-1343 (doi: <http://dx.doi.org/10.1175/MWR-D-13-00159.1>).
- Kerns, B. W., and S. S. Chen, 2014: ECMWF and GFS Model Forecast Verification During DYNAMO: Multi-scale Variability in MJO Initiation over the Equatorial Indian Ocean, *J. Geophys. Res.*, accepted.
- Judt, F., and S. S. Chen, 2014: A “Convective Explosion” and its Environmental Conditions in MJO Initiation Observed during DYNAMO, *J. Geophys. Res.*, in press.
- Chen, S. S., D. P. Jorgensen, B. W. Kerns, N. Guy, J. Delanoë, C.-Y. Lee, F. Judt, N. Viltard, E. Fontaine, and C. Zappa, 2014: Overview of aircraft observations in DYNAMO: Emerging science in MJO, *Bull. Amer. Meteor. Soc.*, submitted.
- Lee, C.-Y., and S. S. Chen, 2014a: Stable boundary layer and its impact on tropical cyclone structure in a coupled atmosphere-ocean model, *Mon. Wea. Rev.*, **142**, in press (doi: <http://dx.doi.org/10.1175/MWR-D-13-00122.1>).
- Lee, C.-Y., and S. S. Chen, 2014b: Reply to comments on symmetric and asymmetric structures of hurricane boundary layer in coupled atmosphere-wave-ocean models and

observations, *J. Atmos. Sci.*, **71**, in press (doi: <http://dx.doi.org/10.1175/JAS-D-13-0341.1>).

Lee, C.-Y., and S. S. Chen, 2014c: Air-sea coupling in Typhoon Fanapi (2010). Part I: Observations of stable boundary layer and storm-induced cooling from ITOP, *J. Atmos. Sci.*, submitted.

Lee, C.-Y., and S. S. Chen, 2014d: Air-sea coupling in Typhoon Fanapi (2010). Part II: Impact of the in-situ cold wake on storm structure and intensity, *J. Atmos. Sci.*, submitted.

D'Asaro, E., P. G. Black, L. Centurioni, Y-T. Chang, S. S. Chen, R. Foster, H.C. Graber, P. Harr, V. Hormann, R.-C. Lien, I.-I. Lin, T.B. Sanford, T.-Y. Tang, and C.-C. Wu, 2014: Impact of Typhoons on the Ocean in the Pacific: ITOP, *Bull. Amer. Meteor. Soc.*, **95**, in press.

Coelho E., P. Hogan, G. Jacobs, P. Thoppil, H. Huntley, B. Haus3, B. Lipphardt, Jr., A. D. Kirwan, Jr., E. H. Ryan, J. Olascoaga3, G. Novelli, F. Beron-Vera, A. C. Haza, A. C. Poje, A. Griffa, T.M. Özgökmen, D. Bogucki, S. S. Chen, M. Curcic, M. Iskandarani, F. Judt, N. Laxague, A. J. Mariano, A.J.H.M. Reniers, C. Smith, A. Valle-Levinson, and M. Wei, 2014: Ocean Current Estimation using a Multi-Model Ensemble Kalman Filter during the Grand Lagrangian Deployment (GLAD) experiment. *Ocean Modelling*, in review.

Jacobs, G. A., B. Bartels, D. Bogucki, F. J. Beron-Vera, S. S. Chen, E. F. Coelho, M. Curcic, A. Griffa, M. Gough, B. K. Haus, A. C. Haza, R. W. Helber, P. J. Hogan, H. Huntley, M. Iskandarani, F. Judt, A. D. Kirwan Jr., N. Laxague, A. Valle-Levinson, B. Lipphardt, A. Mariano, H. E. Ngodock, G. Novelli, M. J. Olascoaga, T. M. Ozgokmen, P. G. Thoppil, A. C. Poje, A. Reniers, C. D. Rowley, E. H. Ryan, S. R. Smith, P. L. Spence, M. Wei, 2014: Data Assimilation Considerations for Improved Ocean Predictability during the Gulf of Mexico Grand Lagrangian Deployment (GLAD), *Ocean Modeling*, in review.

Kerns, B. W., and S. S. Chen, 2013: Cloud clusters and tropical cyclogenesis: Morphology and large-scale environment of developing and non-developing systems, *Mon. Wea. Rev.*, **141**, 190-210.

Judt, F., and S. S. Chen, 2013: Reply to “Comments on ‘Convectively Generated Potential Vorticity in Rainbands and Formation of the Secondary Eyewall in Hurricane Rita of 2005’”. *J. Atmos. Sci.*, **70**, 989–992.

Sraj, I, M. Iskandarani, A. Srinivasan, W. C. Thacker, J. Winokur, A. Alexanderian, C.-Y. Lee, S. S. Chen, and O. M. Knio, 2013: Bayesian inference of drag parameters using Fanapi AXBT data, *Mon. Wea. Rev.*, **141**, 2347-2367.

- Lin, I.-I., P. Black, J. F. Price, C.-Y. Yang, S. S. Chen, C.-C. Lien, P. A. Harr, N.-H. Chi, C.-C. Wu, and E. A. D'Asaro, 2013: An ocean cooling potential intensity index for tropical cyclones, *Geophys. Res. Lett.*, **40**, 1878-1882, doi: 10.1002/grl.50091.
- Lee, C.-Y., and S. S. Chen, 2012: Symmetric and asymmetric structures of hurricane boundary layer in coupled atmosphere-wave-ocean models and observations, *J. Atmos. Sci.*, **69**, 3576-3594.
- Donelan, M. A., M. Curcic, S. S. Chen, and A. K. Magnusson, 2012: Modeling Waves and Wind Stress, *J. Geophys. Res.* **117**, DOI: 10.1029/2011JC007787.
- Tao, W.-K., J. J. Shi, S. S. Chen, and co-authors, 2011: The impacts of microphysical schemes on hurricane intensity and Track, *Asia-Pacific J. Atmos. Sci.*, **47**, 1-16.
- Judt, F., and S. S. Chen, 2010: Convectively Generated Potential Vorticity in Rainbands and Formation of Secondary Eyewall in Hurricane Rita of 2005, *J. Atmos. Sci.*, **67**, 3581–3599.
- Dabberdt, W., R. E. Carbone, S. S. Chen, G. S. Forbes, E. Foufoula-Georgiou, R. Morss, J. T. Snow, X. Zeng, 2010: When Weather Matters, *The National Academies Press*, pp 181.
- Ray, P., C. Zhang, J. Dudhia, and S. S. Chen, 2009: A Numerical Case Study on the Initiation of the Madden-Julian Oscillation, *J. Atmos. Sci.*, **66**, 310-331.
- Chen, S. S., and W. Zhao, 2008: Atmospheric forcing in the Japan/East Sea during January 1997. *Asia-Pacific J. Atmos. Sci.*, **44**, 17-28.
- Davis, C., W. Wang, S. S. Chen, Y. Chen, K. Corbosiero, M. DeMaria, J. Dudhia, G. Holland, J. Klemp, J. Michalakes, H. Reeves, R. Rotunno¹, and Q. Xiao, 2008: Prediction of landfalling hurricanes with the Advanced Hurricane WRF Model, *Mon. Wea. Rev.*, **136**, 1990-2005.
- Langousis, A., D. Veneziano, S. S. Chen, 2008: A boundary layer model for moving tropical cyclones, *Hurricanes and Climate Change*, Springer, 71-85.
- Chen, S. S., J. F. Price, W. Zhao, M. A. Donelan, and E. J. Walsh, 2007: The CBLAST-Hurricane Program and the next-generation fully coupled atmosphere-wave-ocean models for hurricane research and prediction. *Bull. Amer. Meteor. Soc.*, **88**, 311-317.
- Houze, R. A., S. S. Chen, B. Smull, W.-C. Lee, M. Bell, 2007: Hurricane intensity and eyewall replacement. *Science*, **315**, 1235-1239.
- Rogers, R., M. Black, S. S. Chen, and R. Black, 2007: Evaluating microphysical parameterization schemes for use in hurricane environments. Part I: Comparisons with observations. *J. Atmos. Sci.*, **64**, 1811-1834.

- Chen, S. S., J. Knaff, F. D. Marks, 2006: Effect of vertical wind shear and storm motion on tropical cyclone rainfall asymmetry deduced from TRMM. *Mon. Wea. Rev.*, **134**, 3190-3208.
- Houze, R. A., S. S. Chen, and co-authors, 2006: The Hurricane Rainband and Intensity Change Experiment (RAINEX): Observations and modeling of Hurricanes Katrina, Ophelia, and Rita (2005). *Bull. Amer. Meteor. Soc.*, **87**, 1503-1521.
- Dorman, C. E., C. A. Friehe, D. Khelif, A. Scotti, J. Edson, R. C. Bearsley, S. S. Chen, 2006: Winter atmospheric conditions over the Japan/East Sea: Structure and impact of severe cold-air outbreaks. *Oceanography*, **19**, 3.
- Chen, S. S., W. Drennan, J. Mullen, H.-J. Xue, and P. Chu, 2006: Coastal atmosphere-wave-ocean coupling, *Coupled Coastal Wind-Wave-Current Dynamics, SCOR, Graig et al. Ed.*
- Mechem, D. B., S. S. Chen, and R. A. Houze, Jr., 2005: Momentum transport processes in the stratiform regions of mesoscale convective systems over the western Pacific warm pool, *Quat. J. Roy. Meteor. Soc.*, **132A**, 709-736.
- Lonfat, M., F. D. Marks, S. S. Chen, 2004: Precipitation distribution in tropical cyclones using the Tropical Rainfall Measuring Mission (TRMM) microwave imager: A global perspective. *Mon. Wea. Rev.*, **132**, 1645-1660.
- Stensrud, D. J., H. E. Brooks, S. S. Chen, and P. J. Rebber, 2004: Editorial. *Weather and Forecasting*, **19**, 3-4.
- Rogers, R., S. S. Chen, J. E. Tenerelli, and H. E. Willoughby, 2003: A numerical study of the impact of vertical shear on the distribution of rainfall in Hurricane Bonnie (1998), *Mon. Wea. Rev.*, **131**, 1577-1599.
- Mechem, D. B., R. A. Houze, and S. S. Chen, 2002: Layer inflow into precipitating convection over the western tropical Pacific, *Quat. J. Roy. Meteor. Soc.*, **128**, 1997-2030.
- Chen, S. S., W. Zhao, J. E. Tenerelli, R. H. Evans, V. Halliwell, 2001: Impact of the Pathfinder sea surface temperature on atmospheric forcing in the Japan/East Sea, *Geophys. Res. Lett.*, **28**, No. 24, 4539-4542.
- Houze, R. A. Jr., S. S. Chen, D. Kingsmill, Y. Serra, S. E. Yuter, 2000: Convection over the Pacific warm pool in relation to the atmospheric Kelvin-Rossby wave. *J. Atmos. Sci.*, **57**, 3058-3089.
- Mooers, C. N. K., H. S. Kang, and S. S. Chen, 2000: Several aspects of the simulated response of the Japan (East) Sea to synoptic atmospheric forcing due to Siberian cold air outbreaks, *La Mer*, **38**, 233-243.
- Su, H., C. S. Bretherton, and S. S. Chen, 2000: Self-Aggregation and Large-Scale

Control of Tropical Deep Convection: A Modeling Study. *J. Atmos. Sci.* **57**, 1797-1816.

Su, H., S. S. Chen, and C. S. Bretherton, 1999: Three-Dimension week-long Simulations of TOGA COARE Convective Systems Using the MM5 Mesoscale Model. *J. Atmos. Sci.*, **56**, 2326-2344.

Chen, S. S., and R. A. Houze, Jr., 1997a: Diurnal variation and lifecycle of deep convective systems over the tropical Pacific warm pool. *Quat. J. Roy. Meteor. Soc.*, **123**, 357-388.

Chen, S. S., and R. A. Houze, Jr., 1997b: Interannual variability of deep convection over the tropical warm pool. *J. Geophys. Res.*, **102**, 25,783-25,795.

Chen, S. S., R. A. Houze, Jr. and B. E. Mapes, 1996: Multiscale variability of deep convection in relation to large-scale circulation in TOGA COARE. *J. Atmos. Sci.*, **53**, 1380-1409.

Chen, S. S., R. A. Houze, Jr., B. E. Mapes, S. Brodzik, and S. Yuter, 1995: TOGA COARE satellite data summaries available via World Wide Web. *Bull. American Meteor. Soc.*, **76**, 329-333.

Chen, S. S., and W. M. Frank, 1993: A numerical study of the genesis of extratropical convective mesovortices. Part I: Evolution and Dynamics. *J. Atmos. Sci.*, **50**, 2401 - 2426.

Doviak, R. J., S. S. Chen, and D. R. Christie, 1991: A thunderstorm generated solitary wave observation compared with nonlinear wave theory for a compressible fluid. *J. Atmos. Sci.*, **48**, 87-111.

TEACHING SPECIALIZATION (COURSES TAUGHT AT UM)

Undergraduate: MSC103 Survey of Modern Meteorology*
 MSC106 Hurricane and Society*
 MSC240 Introduction to Meteorology
 MSC405 Dynamic Meteorology I
 MSC407 Advanced Weather Analysis and Forecasting*
 MSC408 Tropical Meteorology I*

Graduate: MPO552 Synoptic Meteorology Laboratory
 MPO561 Tropical Meteorology*
 MPO615 Numerical Weather Prediction*
 MPO651 Dynamics and Modeling of Weather and Climate Systems*
 MPO675 Current Topics in Modern Meteorology*

* New courses developed by Shuyi S. Chen

THESIS & DISSERTATION ADVISING

Graduate Students Advising:

Ph.D. Committee **Chair**, Chiaying Lee, University of Miami (graduated 2012)
Ph.D. Committee **Chair**, Melicie Desflots, University of Miami (graduated 2009)
Ph.D. Committee **Chair**, Manuel Lonfat, University of Miami (graduated 2004)
Ph.D. Committee **Co-Chair**, David Mecham, University of Washington (graduated 2003)
Ph.D. Committee **Co-Chair**, Wei Zhao, Qingdao Ocean University (graduated 2002)
Ph.D. Committee **Chair**, Falko Judt, University of Miami (Summer 2013)
Ph.D. Committee **Chair**, Milan Curcic, University of Miami
Ph.D. Committee **Chair**, Ajda Saravin, University of Miami
Ph.D. Committee **Chair**, Derek Ortt, University of Miami
Ph.D. Committee **Chair**, Jenna King, University of Miami
Ph.D. Committee Member, Hui Su, University of Washington (graduated 1998)
Ph.D. Committee Member, Guojun Gu, University of Miami (graduated 2001)
Ph.D. Committee Member, HeeSook Kang, University of Miami (graduated 2001)
Ph.D. Committee Member, Ping Zhu, University of Miami (graduated 2002)
Ph.D. Committee Member, Fengchao Yao, University of Miami (graduated 2006)
Ph.D. Committee Member, Pallav Ray, University of Miami (graduated 2008)
Ph.D. Committee Member, Jun Zhang, University of Miami (graduated 2007)
Ph.D. Committee Member, Andreas Langousis, Massachusetts Institute of Technology
Ph.D. Committee Member, Brandon Kerns, University of Utah (graduated 2008)
Ph.D. Committee Member, Deanna Hence, University of Washington (graduated 2012)
Ph.D. Committee Member, Marcela Ulate-Medrano, University of Miami

M.S. Committee **Chair**, Patricia Sanchez, University of Miami (graduated 2013)
M.S. Committee **Chair**, Ronald Gordon, University of Miami (graduated 2012)
M.S. Committee **Chair**, Falko Judt, University of Miami (graduated 2010)
M.S. Committee **Co-Chair**, Sophia Brumer, South Hampton U. (graduated 2011)
M.S. Committee **Chair**, Derek Ortt, University of Miami (graduated 2007)
M.S. Committee **Chair**, Peter Kozich, University of Miami (graduated 2005)
M.S. Committee **Chair**, John Cangialosi, University of Miami (graduated 2004)
M.S. Committee **Chair**, Robert Wolfe, University of Miami (graduated 2003)
M.S. Committee **Chair**, Joel Cline, University of Miami (graduated 2003)
M.S. Committee **Chair**, Rebecca Waddington, University of Miami
M.S. Committee Member, Andrew Hagen, University of Miami (graduated 2010)
M.S. Committee Member, Da Hai Jeon, University of Miami (graduated 2009)
M.S. Committee Member, Mei Wang, University of Miami (graduated 2008)
M.S. Committee Member, Fei Zhang, University of Miami (graduated 2004)
M.S. Committee Member, Tara Sharon, University of Miami (graduated 2003)

Undergraduate Research Advising:

B.S. Research Advisor, Robert Brinthaup, University of Miami

B.S. Research Advisor, Reed MacDonald, University of Miami
B.S. Research Advisor, Ajda Saravin, University of Miami (graduated 2013)
B.S. Research Advisor, Lee Picard, University of Miami (graduated 2012)
B.S. Research Advisor, Ken Dixon, University of Miami (graduated 2011)
B.S. Research Advisor, Jason Hwang, University of Miami (graduated 2009)
B.S. Research Advisor, Derek Ortt, University of Miami (graduated 2005)
B.S. Research Advisor, Luke Kosar, University of Miami (graduated 2004)
B.S. Research Advisor, Ryan Ellis, University of Miami (graduated 2003)
B.S. Research Advisor, Jennifer Edmonds, University of Miami (graduated 2003)

SERVICE

University Committee & Administrative Responsibilities:

- Member of the Faculty Senate
- Faculty Senate Budget and Compensation Committee
- UM Center for Computational Science Power User Committee

Community and Outreach Activities:

- 2011: Lecturer and Mentor for Underrepresented Youth at the Miami Science Museum
- 2010-2012: Science Advisor and Mentor for the UCAR Significant Opportunities in Atmospheric Research and Science (SOARS) students
- 2008-2013: Science advisor for undergraduate students from the University of Puerto Rico as part of the NSF/NOAA minority students training program